

REMARKS

Introduction

Applicants acknowledge receipt of the Office Action dated July 7, 2009. Claims 1-6 and 8-14 are pending. Claim 7 is cancelled. Claims 1-6 and 8-14 stand rejected.

No new matter is presented. Reconsideration of the pending claims is respectfully requested.

Rejections Under 35 U.S.C. §103

A. Rejection of Claims 1-6, 8, and 11-14 over *Pallett et al.* (WO 02/21919) in view of *Johnson* (U.S. Patent No. 4,776,882)

The Examiner rejects claims 1-6, 8, 11, and 12 under 35 U.S.C. §103(b) as being unpatentable over ***Pallett et al.*** (WO 02/21919) in view of ***Johnson*** (U.S. Patent No. 4,776,882). The Examiner contends ***Pallett et al.*** teach a herbicidal composition comprising 2-(2'-nitro-4'-methylsulfonylbenzoyl)-1,3-cyclohexanedione and ethoxylated tristyril-phenol phosphate as adjuvant as well as a method of applying the composition for controlling the growth of weeds in crops-growing areas. The Examiner admits that ***Pallett et al.*** do not teach the claimed phosphate adjuvant but claims that ***Johnson*** cures this deficiency by disclosing a composition comprising a penetrant-carrier in combination with a biocide. Thus, the Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of ***Pallett et al.*** and ***Johnson*** to arrive at the instant invention. The basis for this conclusion is that one of ordinary skill would have been motivated to incorporate a penetrating agent into a herbicidal composition containing a metal complex of 2-(substituted benzoyl)-1,3-cyclohexanedione herbicide in order to widen the spectrum of weed control and improve herbicidal selectivity to off-target vegetation. Based on the ***Pallett et al.*** and ***Johnson***, the Examiner contends one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Applicants respectfully disagree.

Pallett et al. relates to herbicidal compositions comprising a mixture of a bezoyl cyclohexanedione and herbicidal urea compounds as well as a method of controlling weeds (see page 1, lines 3-4). Contrary to the Examiner's assertion, ***Pallett et al.*** does not disclose a herbicidal composition comprising a metal chelate of a 2-(substituted benzoyl)-1,3-cyclohexanedione of formula (I) and an organic phosphate, phosphonate or phosphinate adjuvant as recited in the instant claim 1, much less a metal chelate of a 2-(substituted

benzoyl)-1,3-cyclohexanedione in combination with the instantly claimed phosphate adjuvant. Instead, **Pallett et al.** simply state:

Herbicidal compositions according to the present invention may also contain, if desired, conventional adjuvants such as adhesives, protective colloids, thickeners, penetrating agents, stabilisers, sequestering agents, anti-caking agents, colouring agents and corrosion inhibitors. These adjuvants may also serve as carriers or diluents.

See page 7, lines 9-13.

Pallett et al. does not disclose any ingredients that can be specifically described as phosphate adjuvants. While **Pallet et al.** disclose, *inter alia*, a composition comprising ethoxylated tristyril phenol phosphate (Soprophor FL) (See Example C1), the ethoxylated tristyril phenol phosphate is physically different from the phosphate and phosphinate /phosphonates adjuvants of the present invention. Specifically, the ethoxylated tristyril phenol phosphate represents a surface active agent which acts as a dispersing/suspending agent for the solid particles comprised in the suspension concentrate formulation. The inclusion of a dispersing agent for suspension concentrate formulations is standard practice in the crop science industry because phosphated dispersants such as ethoxylated tristyril phenol phosphate merely convey some degree of charge stabilization to the suspension concentrate. One of ordinary skill in the art, however, would have no reason to believe that ethoxylated tristyril phenol phosphate would provide comparable adjuvant or bioactivation properties as demonstrated by the phosphate and phosphinate/phosphonates adjuvants of the present invention.

Johnson does not cure the deficiencies of **Pallet et al.** **Johnson** relates to a concentrated basal spray and, in particular, the use of phosphoric acid and/or phthalic acid esters as wood penetrants for biocidally active ingredient in basal spray compositions (see Abstract).

As to the difference between the prior and the current claims, the present invention provides a formulation which improves the selectivity of the 2-(substituted benzoyl)-1,3-cyclohexanedione herbicides of formula (I) by including in the phosphate, phosphonate or phosphinate adjuvants as recited in claim 1. These phosphate, phosphonate or phosphinate adjuvants have been shown to improve the level of activity of the 2-(substituted benzoyl)-1,3-cyclohexanedione with little or no increase in crop damage (i.e. the selectivity of the - (substituted benzoyl)-1,3-cyclohexanedione is increased). The Examiner contends that **Johnson** teaches that when use with herbicides of limited soil activity, the penetrant-carrier can also help eliminating or reducing potential injury to off-target vegetation. In actuality, **Johnson**

does not actually state that the "penetrant-carrier can also help eliminating or reducing potential injury to off-target vegetation". The Examiner appears to infer that **Johnson** suggests that the penetrant-carrier can also aid in the susceptibility or tolerance of the off-target plants to the herbicide and, thus, meets the claimed method for "improving the selectivity of a metal-chelated of 2-(substitutedbenzoyl)-1,3-cyclohexanedione of Formula (I) (e.g., claim 12). Applicants disagree with the Examiner's interpretation of **Johnson**. According to **Johnson**:

This invention relates to the discovery that esters of phosphoric and phthalic acids are effective wood penetrant-carriers for fungicides, insecticides, herbicides, and plant growth regulators. The aforementioned penetrant-carriers are especially effective when the active ingredients are oil-soluble and/or oil miscible. Basal spray compositions using these penetrants can be effectively used (a) with 1/10 of the total conventional volume--thus eliminating the necessity of transporting large volumes of expensive fuel oil to the use site; (b) in any season--the absence of water eliminates freezing problems; and (c) with herbicides of limited soil activity thus eliminating or significantly reducing potential injury to off-target vegetation.

(See column 1, lines 50-63)

Thus, **Johnson** simply indicates that the penetrants may be used with (i.e in conjunction with) herbicides of limited soil activity. The inherent property of these herbicides (having limited soil activity) reduces potential injury to off-target vegetation rather than the penetrant *per se* reducing injury to the off-target vegetation. Accordingly, there is a vast difference between the cited references and the current claims in that there exists no suggestion in **Johnson** that the penetrant-carrier, *per se*, can eliminate or reduce potential injury to off-target vegetation (i.e., improve herbicide selectivity).

Secondly, the problems that **Johnson** and the present invention address are very different. Those skilled in the art would not view **Johnson** as applicable in the context of the present invention. **Johnson** relates to the discovery that esters of phosphoric acid or phthalic acid are effective wood penetrants for biocidally active ingredients (e.g phenoxy herbicides) which can provide improved compositions for basal spray application to woody plants. **Johnson** specifically indicates that basal sprays (i.e a spray which is directly applied, usually via conventional low volume spray apparatus, to the stem or bark of a woody plant as opposed to broadcast foliar sprays, are highly desirable in this context (column 1, lines 13-18). The present invention, on the other hand, is based upon the discovery that, *inter alia*, esters of phosphoric acid can improve the herbicide selectivity between crop and weed species of a certain defined herbicide class (i.e., metal chelate of a 2-(substituted benzoyl)-1,3-cyclohexanedione). Thus, in the context of the present invention, the herbicidal composition is

applied to both the desirable and undesirable vegetation, whereas the composition of **Johnson** is applied just to the undesirable vegetation so the issue of "herbicide selectivity" is, in effect, largely irrelevant and not addressed. Applicants found that the use of phosphoric acid esters results in a surprising improvement in "herbicide selectivity" with respect to metal chelates of 2-(substituted benzoyl)-1,3-cyclohexanedione herbicides. Applicants maintain that the teachings of **Pallett et al.** and **Johnson** are in mutually exclusive technical fields and, as a result, there is no teaching, suggestion or motivation in the cited references to combine these references in the claimed manner.

Lastly, the Examiner incorrectly suggests that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of **Pallett et al.** and **Johnson** to arrive at the instant invention. Applicants respectfully disagree. One of ordinary skill in the art could not have replaced the phosphate dispersing agent in the composition taught by **Pallett** with a wood penetration phosphate adjuvant taught by **Johnson** to arrive at the instant invention. At best, one of ordinary skill in the art that was considering alternative dispersing agents to ethoxylated tristyril phenol phosphate taught by **Pallett et al.** would have examined phosphates having similar dispersing properties in view of the stark differences noted above. Thus, one of ordinary skill would not have been motivated to employ the instant phosphate adjuvant to improve herbicidal effect and would not have had a reasonable expectation of success in producing the claimed invention. Accordingly, the instantly claimed herbicide is not disclosed or even remotely suggested by **Pallett et al.**, alone, or in combination with **Johnson**. Reconsideration and withdrawal of this rejection is respectfully requested.

B. Rejection of Claims 9-10 over Pallett et al. (WO 02/21919) in view of Johnson (U.S. Patent No. 4,776,882) and further in view of Goyette (U.S. Patent No. 2,927,014)

The Examiner rejects claims 9-10 under 35 U.S.C. §103(b) as being unpatentable over **Pallett et al.** (WO 02/21919) in view of **Johnson** (U.S. Patent No. 4,776,882) and further in view of **Goyette** (U.S. Patent No. 2,927,014). The Examiner once again asserts, as a basis for the rejection, that **Pallett et al.** teach a herbicidal composition comprising 2-(2'-nitro-4'-methylsulfonylbenzoyl)-1,3-cyclohexanedione and a phosphate as adjuvant. Again, in determining the scope and content of the prior art, the Examiner has erred in suggesting that **Pallett et al.** teach a herbicidal composition comprising mesotrione or its metal complex and a phosphate as adjuvant. Applicants reiterate that **Pallett et al.** disclose no such teaching and,

thus, the obviousness analysis provided in the Office Action is without proper basis. **Johnson** does not cure the deficiencies of **Pallett et al.** for the reasons set forth above.

Goyette also fails to cure the deficiencies of **Pallett et al.** **Goyette** relates to the use of phosphoric and phthalic acids as wood penetrant carriers for biocides such as fungicides, insecticides, herbicides, and plant growth regulators. In contrast, the presently claimed invention is based upon the discovery that, *inter alia*, esters of phosphoric acid can improve the herbicide selectivity between crop and weed species of a certain defined herbicide class (i.e., metal chelate of a 2-(substituted benzoyl)-1,3-cyclohexanedione). There was absolutely no motivation for one of ordinary skill to consider phosphate compounds exhibiting wood penetration properties. Thus, one of ordinary skill, upon considering the cited references, would not have been motivated to employ the instant phosphate adjuvant to improve herbicidal effect and would not have had a reasonable expectation of success in producing the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

C. Rejection of Claims 1-6 and 8-14 over Scher et al. (U.S. Patent No. 5,912,207) in view of Johnson (U.S. Patent No. 4,776,882) and Goyette (U.S. Patent No. 2,927,014)

The Examiner rejects claims 1-6 and 8-14 under 35 U.S.C. §103(b) as being unpatentable over **Scher et al.** (U.S. Patent No. 5,912,207) in view of **Johnson** (U.S. Patent No. 4,776,882) and **Goyette** (U.S. Patent No. 2,927,014). The Examiner argues that **Scher et al.** teach a herbicidal formulation comprising a metal chelate herbicide and a phosphate as an adjuvant that provides the source of the metal ion. The Examiner admits that **Scher et al.** do not disclose phosphonate or phosphinate adjuvants but contends that **Goyette** teach phosphonate and phosphinate possess herbicidal activity. Based on these alleged teachings, the Examiner concludes that one of ordinary skill would have been motivated to substitute the alleged adjuvant with a phosphonate or a phosphinate and expect similar and successful results because the phosphonate and phosphinate both possess herbicidal activity that, when used in combination with a herbicide, can further enhance the herbicidal effect of the cyclohexanedione compound for controlling the growth of unwanted vegetations. Applicants respectfully disagree with the basis of this contention.

The rejection is based on the contention that **Scher et al.** teach an herbicidal composition comprising a metal chelate herbicide and a phosphate as an adjuvant. **Scher et al.** do not teach such a combination. Instead, **Scher et al.** merely suggest that a phosphate is an example of a suitable salt which could be the source of the di- or tri-valent metal ion (see column 7, line 57). Thus, **Scher et al.** do not teach or suggest the use of a phosphate adjuvant

as instantly claimed. Accordingly, the obviousness analysis which is predicated on the assumption that **Scher et al.** teach a phosphate adjuvant is without proper basis. **Johnson** and **Goyette** fail to cure the deficiencies of **Scher et al.** for the reasons set forth above. Reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicants believe the claims are in condition for allowance. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

Respectfully submitted,

Date: November 30, 2009

Attorney Docket: PPD 70048
(S19996 1130US)

/Mark D. Jenkins/

Mark D. Jenkins
Reg. No. 59,566
Attorney for Applicant
Womble Carlyle Sandridge & Rice, PLLC
Post Office Box 7037
Atlanta, Georgia 30357-0037
Telephone: (919) 484-2317
Facsimile: (919) 484-2096
Customer No.: 86344